

REMARKS

Claims 1, 3-6 and 8-22 are pending. Claims 1, 3, 6 and 8 have been amended, claims 2 and 7 canceled without prejudice to or disclaimer of the subject matter found therein; and claims 13-22 added. Further, the specification is amended to correct minor informalities found therein.

On page 2 of the Office Action, claims 1-12 were rejected under 35 U.S.C. §102(b) as anticipated by Stern et al., U.S. Patent No. 5,755,715 (hereinafter "Stern"). The rejection is respectfully traversed.

Applicant's claim 1 calls for an apparatus for forming a lesion in body tissue, the apparatus comprising a probe adapted to contact body tissue, and having at least one electrode, at least one temperature sensor capable of measuring the temperature of the probe and generating signals representative of the temperature, and a controller comprising generation means for generating electromagnetic energy and supplying the energy to the at least one electrode, and control means for receiving the signals from the at least one temperature sensor and controlling the generation means such that the temperature of the probe is ramped up to a first equilibrium temperature, the temperature of the probe is held substantially constant at the equilibrium temperature for a period of time to allow the temperature of different parts of the probe to equilibrate and the temperature of the probe is then increased to and maintained at a final steady state temperature, wherein the equilibration temperature is between 90°C and 105°C.

Claim 6 calls for a method of forming a lesion and body tissue comprising the steps of providing a probe capable of contacting body tissue to be treated, delivering electromagnetic energy to the probe such as to raise the temperature of the tissue in contact with the probe, measuring the temperature of the probe, and controlling the delivery of the electromagnetic energy such that in an initial ramp-phase, the temperature of the probe is raised rapidly to a first

threshold temperature, in a second equilibrating phase, the temperature of the probe is held substantially constant for a period of time to allow the temperature of different parts of the probe to equilibrate, and in a subsequent treatment phase, the temperature of the probe is raised to a second, higher threshold temperature such that a lesion is formed in the tissue adjacent the probe without the complete removal of electrolytes in the tissue adjacent to the probe through vaporization, wherein the first threshold temperature is between 90°C and 105°C.

Added claims 13 and 17 are similar to claims 1 and 6 except for the wherein clause which states that the final steady state temperature is between 100°C and 115°C. Stern discloses no such device.

For a rejection under 35 U.S.C. §102, the reference must literally disclose each and every feature of the claimed invention. Stern does not do so. In fact, Stern, if anything, could be considered part of the background art such as that described in Applicant's Background of the Invention. Stern is directed to ablating heart tissue for treating cardiac conditions although the reference notes that the technique can also be used to ablate tissue in the prostate, brain, gall bladder, uterus and other regions of the body (col. 1, lines 20 and 21; col. 2, lines 42-46). However, in doing so, it specifically teaches that the temperature of the first processing stage is set in the range of 50-90°C (col. 6, lines 1-14).

Figs. 6a and 6b show two methods of performing the ablating of tissue. Fig. 6a shows a temperature versus time curve for heating tissue. The curve has a first temperature value set at a first time period and at least one additional temperature value, different from the first temperature value set at a second time period after the first time period. As shown in Fig. 6a, the set temperature increases linearly and then becomes non-linear as it approaches a preselected final control value for ablation (col. 9, line 44-62). That temperature is approximately 75°C.

In the second, or alternative, implementation there is a more complex curve where the temperature increases to a flattened out first preselected value for thermal mapping at approximately 42.5°C and then increases in a straight line becoming non-linear function that flattens out as a second preselected value for tissue ablation which again is somewhere around 85°C. As noted the thermal mapping is normally within a range of 45-50°C whereas the second value for tissue ablation is within 50-90°C and preferably about 70°C (col. 9, line 63-col. 10, line 12). Thus, Stern uses instructions to maintain the temperature below 100°C as Applicant indicated is well established. Conversely, Applicant's claim 1, in the wherein clause, does not set out a first temperature for thermal mapping rather Applicant's invention sets out an equilibration temperature to obtain a uniform temperature throughout the probe, or a first threshold temperature as found in claim 6, between 90 and 105°.

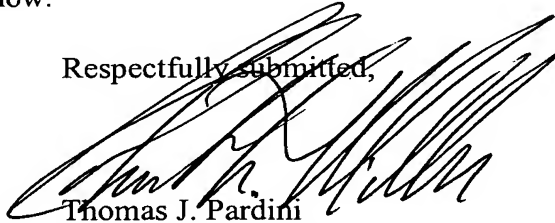
As to the ablating temperature, Stern specifically says it is within 50-90°C and preferably about 70°C. Applicant's claim 13 calls for a final steady state temperature between 100 and 115°C and claim 17 states that the second threshold temperature is between 100 and 115°C. Thus, Stern's first temperature region over a first period of time for thermal mapping is contrary to Applicant's equilibration temperature or first threshold temperature for equalizing the temperature throughout the probe both in function and also differs in temperature ranges with Stern's temperatures being substantially one half of Applicant's claimed temperatures. As to Stern's second temperature region for the second period of time used for ablating, they are lower than Applicant's final steady state temperature or Applicant's second higher threshold temperature and in fact are in the range of what is discussed in Applicant's Background of the Invention.

For all the foregoing reasons, Stern does not anticipate Applicant's invention. Further, Stern does not suggest the claimed invention for the reasons discussed.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3-6 and 8-22 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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